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ON OUR COVER

Jerry Smith

As the Tennessee Solar Energy Society discovered, solar bike racing is an enjoyable and engaging strategy for educating students and the public about solar energy technologies. From the left, Kathryn McCoy, Linda Hardymon and Smyrna High School student Melody Mangrum pose with their solar bikes.

IN OUR NEXT ISSUE

American businesses, communities and consumers now have unprecedented opportunities to reduce the environmental impact of their energy purchase decisions. In this issue, we give readers the resources to understand the consequences of their energy choices and the tools to become clean energy advocates.

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AstroPower, Inc., Newark, Delaware

In addition to large green energy purchases—5 million kilowatt-hours (kWh) annually—that power Fetzer Vineyard's Hopland, California, winery operations, the company has also installed a 40-kilowatt (kW) photovoltaic array on its administration building that meets virtually all of the building's summer electricity needs.

Businesses Lead the "Green Power" Charge

In spite of early expectations of a strong residential market, commercial power customers are taking the lead in green power purchases.

by Blair G. Swezey and Lori A. Bird

Over the last several years, a total of 24 states and the District of Columbia have opened their retail power markets to competition. In several of these states, customers already can choose from among a handful of electricity suppliers, some of which are offering electricity generated from "cleaner" energy sources, including solar, wind and other renewable energy technologies.

In addition, more than 80 utilities in 28 states offer "green pricing" programs, through which customers can support a greater level of utility company investment in renewable energy technologies. All told, more than one-third of U.S. consumers can now choose some type of "green power" product, from either their regulated utility provider or in competitive markets.

Perhaps the most surprising aspect of the way green power markets are developing is that businesses, governments and other types of "commercial" customers account for a growing share of the green power demand. Early green power marketing efforts focused on residential customers, because polls and surveys consistently show that individual consumers place a high value on environmental protection and the use of cleaner energy sources.

Contrary to these expectations, however, the residential market for green power has been slow to develop, because of the expense of marketing to individual consumers and the lack of adequate consumer information about the environmental implications of electricity choices. In addition, the notion of choosing an electricity supplier remains foreign to most consumers, and market inertia is difficult to overcome.

Efforts to market to nonresidential customers are building momentum, however. Once thought to be too price sensitive to pay more for green power, businesses now recognize that green power purchasing can help meet corporate goals related to environmental improvement and sustainable business practices.

Toyota Motor Sales USA

Toyota Motor Sales USA powers its U.S. headquarters, shown here, and several other California facilities with renewable energy, for a total green power purchase of about 38 million kilowatt-hours (kWh) per year.

Green Power Markets

California and Pennsylvania have been the most active competitive markets for green power. In Pennsylvania, market rules encourage customer switching—as of July 2000, 10 percent of eligible customers had switched to an alternative supplier. Of these customers, it is estimated that about 15 percent have switched to a green power marketer. And while the market rules established in California do not encourage customer switching, readily accessible renewable power sources and state-based market incentives have encouraged a large number of companies to sell green power in the market. Because of these incentives, virtually all residential customers that have switched suppliers, as well as many commercial customers, now use some green power.

The Center for Resource Solutions (CRS), a San Francisco-based organization that certifies the products of competitive green power marketers, reports that 38 percent of the demand for "Green-e" certified products sold in California and Pennsylvania in 1999 came from large customers (industrial, small and large commercial, municipalities and agricultural). This figure is up from 21 percent in 1998.

Businesses, governments and other types of "commercial" customers account for a growing share of the green power demand.

Over the last two years, there has been significant growth in the number of utility offerings—more than 50 programs were started compared to about 30 programs combined in all previous years. The participation numbers reported by utilities that have actively included businesses in their program marketing are similar to those reported by CRS for the competitive market. Both Madison (Wisconsin) Gas and Electric and Public Service Company of Colorado report that about 20 percent of the demand for their wind energy offerings comes from nonresidential customers, while businesses account for 38 percent of the wind energy sold by Traverse City (Michigan) Light & Power. And in Austin, Texas, business customers have committed to purchase most of the 40 megawatts (MW) of green power offered by the city's utility—nearly 85 percent—with one company alone committing to 60 percent of the initial green power pool.

Overall, green power marketing activity has resulted in the installation of more than 125 MW of new renewable energy capacity with nearly 180 MW more under development. This represents a nearly 2 percent increase to the U.S. nonhydro renewable power supply.

Why Businesses Buy

Despite a general aversion to paying more for any product or service—including electricity—several factors are driving businesses to purchase green power. First, a growing number of businesses are making "sustainability" a cornerstone of their operations. In addition, businesses are becoming increasingly concerned about global climate change—particularly if they have foreign operations subject to increasing pressure to reduce emissions that contribute to global warming.

Rudd Mayer, Green Marketing Program Director for the Boulder, Colorado-based Land and Water Fund of the Rockies (LAW Fund), has found that some businesses believe that their customers are concerned about the environment and will value (and purchase products and services from) a business that uses green power. Community leadership and public recognition are additional motivations. And for businesses that already have an environmental image or promote environmental responsibility, a green power purchase is a logical next step.

Ed Holt, President of Ed Holt & Associates, Inc. in South Harpswell, Maine, has found that public image can be a motivation for companies to purchase green power, but that this is a more important factor for larger companies. However, businesses across the board have told Holt that building employee morale is another motivation. Mayer notes that the employee pride that results from a favorable perception of corporate ethics can lead to increased employee productivity.

The number of businesses committed to "green" values is impressive. For example, San Francisco-based Business for Social Responsibility, an organization that "help[s]

companies be commercially successful in ways that demonstrate respect for ethical values, people, communities and the environment," boasts a membership of more than 1400 companies that collectively employ more than six million workers and have total annual revenues of more than $1.8 trillion.

Setting an Example

Although many businesses and other commercial or organizational entities are now purchasing green power—the LAW Fund counts more than 450 in Colorado alone—several companies have paved the way. On Earth Day 1998, shortly after the California power market opened to competition, Toyota Motor Sales USA became the first large company to commit to green power, announcing that it would power its U.S. headquarters and several other California facilities—approximately 38 million kilowatt-hours (kWh) per year—with renewable energy. Toyota has long been committed to the environment—one of the company's "guiding principles" is "to exist in harmony with the earth." At the time, Yoshi Ishizaka, the company's President and CEO, stated that "Toyota has a responsibility to the environment that runs beyond designing, building and selling clean, efficient and high-quality cars and trucks. We must also reevaluate every part of our operations from recycling waste paper to purchasing renewable resource electricity."

Another business committed to purchasing green power is the New Belgium Brewing Company, Inc., in Fort Collins, Colorado. A brewer of specialty beers, New Belgium powers the brewery's entire operations with wind energy purchased from Fort Collins Utilities. The 70-person staff of New Belgium voted to purchase the wind power, even though the additional cost would diminish the size of their annual bonuses. The company's total annual wind energy purchase is equivalent to the output of an entire 660-kW wind turbine. The green power purchase is just one facet of a "sustainable business practices culture" that includes purchasing the most energy and environmentally efficient production equipment in spite of higher initial costs.

In the fall of 1999, Fetzer Vineyards also began purchasing renewable energy—5 million kWh annually—to power the winery's Hopland, California, operations. The green power purchase is just the most recent example of Fetzer's commitment to environmentally responsible farming and wine production. Fetzer is the industry leader in farming organic grapes and—through a number of recycling activities—has reduced its waste disposal by 93 percent since 1991, eliminating 1580 cubic yards of landfill. Fetzer has also installed a 40-kW photovoltaic array on its administration building (see photo, page 22)—a system large enough to meet virtually all of the building's summer electricity needs.

A leading retail provider of document copying and business services, Kinko's corporate "Environmental Vision Statement" explicitly states that the company will use energy-efficient technologies and renewable energy sources in its operations. Kinko's is entering into agreements with power suppliers across the country, in both competitive and regulated power markets, to provide green power to its stores. The company has also retrofitted more than 800 branches with energy-efficient lighting.

For example, in California and Pennsylvania, Kinko's uses Green Mountain Energy Company to supply a green power blend to nearly 100 stores. This past summer, the company entered into an agreement with Pacific Gas & Electric Corporation to purchase wind energy "certificates" equivalent to half of the power needs of the company's New York-based retail operations. In Colorado and Tennessee, Kinko's stores purchase green power from local utilities.

Kinko's is also a member of a recently formed group of 10 major U.S. businesses that are working with the World Resources Institute and Business for Social Responsibility to support the development of 1000 megawatts of new "green" energy capacity over the next 10 years. This diverse group of businesses—the Green Power Market Development Group (www.greenpowergroup.org)—includes Alcoa, Cargill Dow, Delphi, Dupont, General Motors, IBM, Interface, Johnson & Johnson, Kinko's and Pitney Bowes.

New Belgium Brewing Company

In 1998, the entire staff of New Belgium Brewing Company agreed to the financial commitment of making their facility the first wind-powered brewery in the U.S.

Government Joins In

Municipalities and state and federal agencies are also purchasing green power, both as a matter of civic duty and to "lead by example." Municipal purchases in California's competitive market amount to an estimated 80 MW of green power demand. Major cities in other states are also exploring green power, and state and federal agencies are making green power commitments either as individual facility purchases or by aggregating loads among several agencies.

In 1996, Salem, Oregon, became the first city to go 100 percent green. Salem Electric Cooperative signed a five-year deal with the Bonneville Power Administration to purchase 7 average megawatts (aMW) of wind power to replace the 17 percent of its electric needs that had been provided by coal, natural gas and nuclear sources. The rest of the city's power comes from hydropower.

In June 2000, Oakland became the latest in a string of California cities to commit to green power when the city council approved a contract to purchase 9 MW to meet 100 percent of the city's municipal electricity loads. Other California cities purchasing green power include Santa Monica and Santa Barbara.

Outside of California, Seattle's city-owned utility is seeking proposals for up to 100 aMW from renewable energy sources. This effort follows a mayoral and city council resolution to meet Seattle's future electricity needs with no net emissions of greenhouse gases, using a combination of energy efficiency and renewables.

And the City of Chicago has joined with 47 other local governments in a load aggre-

Businesses now recognize that green power purchasing can help meet corporate goals related to environmental improvement and sustainable business practices.

gation scheme that will include green power. A specific requirement of the group is that 20 percent of the power provided—80 MW out of 400 MW—come from renewable energy sources.

State and federal agencies are also getting into the act. The Pennsylvania Department of General Services (DGS) is purchasing green power for more than half a dozen state government accounts, representing about 5 percent of the DGS aggregated power purchase for 2000. Pennsylvania agencies receiving cleaner electricity include the Pennsylvania Department of Corrections, Capitol Complex buildings in Harrisburg, state office buildings in Pittsburgh, Scranton and Reading and Pennsylvania's 14 universities.

Finally, a number of federal agencies have made green power commitments, including the General Services Administration, U.S. Environmental Protection Agency, U.S. Department of Energy (DOE) and U.S. Postal Service (USPS). The USPS entered into a contract to purchase renewable power for more than 1000 facilities in California, and 30 federal agencies located along the Colorado Front Range have committed to purchase more than 10 MW of wind energy.

The Colorado announcement followed on the heels of a directive from U.S. Energy Secretary Richardson for DOE to purchase 3 percent of its electricity from non-hydro renewable energy sources by 2005 and 7.5 percent by 2010. A 1999 Presidential Executive Order, which calls for federal agencies to expand the use of renewable energy within facilities, drives other federal green power commitments.

Paving the Way

Over time, individual consumers will become better educated and more comfortable with the process of choosing their power providers, much as they have learned to shop among long distance telephone companies. In the meantime, nonresidential customers are filling the green power demand void. Businesses, governments and other large electricity users are more attuned to "competing" the purchase of products and services and view electricity as the latest in a string of new market opportunities for price savings and service enhancement.

But they also view green power purchases as a way to improve the environmental footprint of their operations. Hopefully, growing awareness and recognition of business and government green power purchases will energize a greater number of individual consumers to also use the power of their pocketbooks to spur the development of renewable energy. ✪

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Madison (Wisconsin) Gas and Electric

Madison Gas and Electric reports that about 20 percent of the demand for their wind energy offerings comes from businesses and other nonresidential customers.